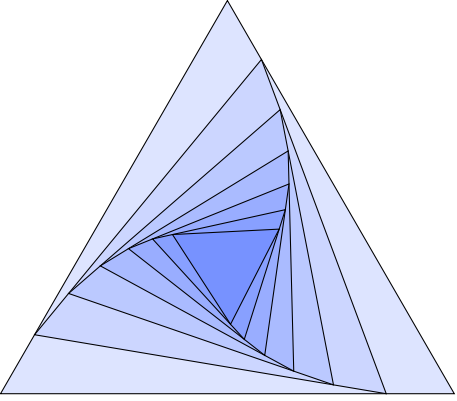

orgmode examples

draw, code evaluation and present in orgmode with LaTeX beamer

kimim

Document ID: Revision: Updated on: September 1, 2021

Outline

1. Introduction
2. Preparation
3. PlantUML Diagrams
4. Tikz
5. Conclusion

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Introduction

Purpose

To evaluate many features of orgmode, such as

- drawing with code
- evaluating results of code snippets
- exporting orgmode file to pdf slides

Introduction

How

Following tools are used in this file:

- MSYS2 provides many tools and libraries, GraalVM JDK
- GNU Emacs with kimim-emacs configuration
- Org Mode, including org-babel, org-export
- TexLive with beamertheme-kimim style
- PlantUML, Graphviz, LaTeX tikz package
- Inkscape to convert svg to pdf, during orgmode-pdf exporting

Outline

Preparation

Emacs settings

You may need to use kimim-emacs configuration:

```
# backup existing emacs config
cd ~ && mv .emacs .emacs-backup && mv .emacs.d .emacs.d-backup
# clone this config
git clone https://github.com/kimim/kimim-emacs
# copy default .emacs to ~
cp kimim-emacs/.emacs ~
```


Preparation

Emacs and Orgmode version

Firstly, let's check GNU Emacs[1] and Orgmode[2] version:

```
(concat  (emacs-version)
         "\nOrgmode " (org-version))
```

```
GNU Emacs 28.0.50 (build 6, x86_64-w64-mingw32)
 of 2021-08-31
Orgmode 9.4.4
```

[1] https://www.gnu.org/software/emacs

[2] https://orgmode.org

Preparation

PlantUML settings in Emacs

Download plantuml.jar[3], and set jar-path:

```
(require 'url-handlers)
(require 'ob-plantuml)
(url-copy-file "https://nchc.dl.sourceforge.net/project/plantuml/plantuml.jar"
               "./plantuml.jar" t)
(setq org-plantuml-jar-path "./plantuml.jar")
```

[3] https://plantuml.com

Preparation

PlantUML version

Here is the version info on my machine, including JVM, dot and graphviz:

```
(shell-command-to-string
 (concat
  "java -jar " org-plantuml-jar-path " -version"))
```

```
PlantUML version 1.2021.8 (Sat Jun 26 16:20:59 CST 2021)
(GPL source distribution)
Java Runtime: OpenJDK Runtime Environment
JVM: OpenJDK 64-Bit Server VM
Default Encoding: Cp1252
Language: en
Country: US

PLANTUML_LIMIT_SIZE: 4096

Dot version: dot - graphviz version 2.44.1 (20200629.0846)
Installation seems OK. File generation OK
```


Preparation

TexLive and Beamer Theme

Install TexLive[4] to `<texlive-path>` and clone beamertheme-kimim[5], and update TEX cache:

```
git clone https://github.com/kimim/beamertheme-kimim \
    <texlive-path>/texmf-local/tex/latex/beamertheme-kimim
mktexlsr
```

[4] http://tug.org/texlive

[5] https://github.com/kimim/beamertheme-kimim

Preparation

Inkscape version

Install Inkscape[6] to convert SVG image to PDF.
This is inkscape version on my Windows 10:

```
inkscape --version
```

```
Inkscape 1.0.2-2 (e86c870879, 2021-01-15)
```

[6] https://inkscape.org

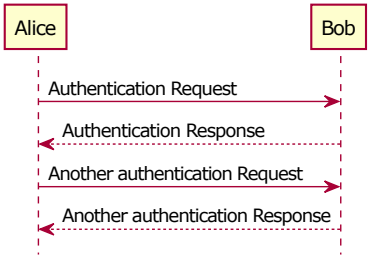
Outline

PlantUML Diagrams

Sequence Diagram

Let’s draw a simple sequence diagram with this plantuml code:

```
@startuml
hide footbox
hide unlinked
Alice -> Bob: Authentication Request
Bob --> Alice: Authentication Response
Alice -> Bob: Another authentication Request
Alice <-- Bob: Another authentication Response
@enduml
```

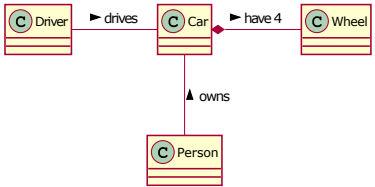


PlantUML Diagrams

Class Diagram

A simple class diagram

```
@startuml
class Car
Driver - Car : drives >
Car *- Wheel : have 4 >
Car -- Person : < owns
@enduml
```

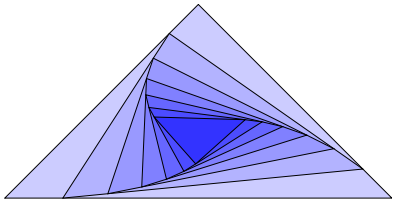


Outline

Tikz

tikz diagram

```
\begin{tikzpicture}
  \coordinate (A) at (0,0);
  \coordinate (B) at (60, 0);
  \coordinate (C) at (30, 30);
  \foreach \density in {20,30,...,80}{%
    \draw[fill=blue!\density]
    (A)--(B)--(C)--cycle;
    \path
    (A) coordinate (X)
    -- (B) coordinate[pos=.15](A)
    -- (C) coordinate[pos=.15](B)
    -- (X) coordinate[pos=.15](C);
  }
\end{tikzpicture}
```



Outline

Conclusion

Key Takeaways

- Emacs is a long lasting, and wonderful text editor
- Orgmode is an awesome plain text format
- LaTeX and Beamer is great typesetting tool
- Thus, drawing plantuml diagram with these tools is cool!